

WHAT IS CLAIMED:

1. A method of allocating upstream resources to a plurality of cable modems, comprising:
 - grouping the plurality of cable modems into a plurality of groups;
 - ordering allocation of upstream resources to each of the plurality of cable modems based on the group to which each of the cable modems belongs; and
 - allocating upstream resources to each of the cable modems based on the ordering.
2. The method of claim 1, wherein grouping the plurality of cable modems comprises grouping the plurality of cable modems into the plurality of groups based on quality of service requirements of each of the cable modems.
3. The method of claim 1, wherein the allocating upstream resources comprises:
 - assigning initialization channels of the upstream resources to each of the plurality of cable modems based on the grouping of the plurality of cable modems.
4. The method of claim 1, wherein the allocating upstream resources comprises:
 - assigning registration channels of the upstream resources to each of the plurality of cable modems based on the grouping of the cable modems.
5. The method of claim 1, wherein a first group of the plurality of groups comprises message transferring agents.

6. The method of claim 1, further comprising:
designating a first group of the plurality of groups as requiring allocation of the upstream resources before other groups of the plurality of groups.
7. The method of claim 6, further comprising:
designating a second group of the plurality of groups as being allocated upstream resources subsequent to the first group.
8. A cable modem termination system (CMTS), comprising:
a memory configured to store instructions; and
a processing unit configured to execute the instructions in the memory to:
group a plurality of cable modems (CMs) into a plurality of groups,
re-boot the CMTS, and
determine an order for allocating upstream resources to each of the plurality of CMs based on the group to which each of the CMs belongs.
9. The system of claim 8, the processing unit further configured to execute the instructions in the memory to:
group the plurality of CMs into the plurality of groups based on quality of service requirements of each of the CMs.
10. The system of claim 8, the processing unit further configured to execute the instructions in the memory to:

allocate initialization channels of the upstream resources to each of the plurality of CMs based on the grouping of the plurality of CMs.

11. The system of claim 8, the processing unit further configured to execute the instructions in the memory to:

allocate registration channels of the upstream resources to each of the plurality of CMs based on the grouping of the CMs.

12. The system of claim 8, wherein a first group of the plurality of groups comprises message transferring agents.

13. The system of claim 8, the processing unit further configured to execute the instructions in the memory to:

designate a first group of the plurality of groups as requiring allocation of upstream resources before other groups of the plurality of groups.

14. The system of claim 13, the processing unit further configured to execute the instructions in the memory to:

designate a second group of the plurality of groups as being allocated upstream resources subsequent to the first group.

15. A method of allocating upstream resources in a cable modem system, comprising:
receiving upstream resource requests from a plurality of cable modems, each of the
resource requests comprising an address associated with a cable modem of the plurality of cable
modems;

determining an order that the upstream resources are to be assigned to each of the
plurality of cable modems based on the address of each of the resource requests; and
allocating the upstream resources based on the determined order.

16. The method of claim 15, wherein the address comprises a medium access control
(MAC) address.

17. The method of claim 15, further comprising:
grouping the plurality of cable modems into a plurality of groups.

18. The method of claim 17, wherein ordering the allocation of upstream resources
comprises allocating the upstream resources to each of the plurality of cable modems based on a
group of the plurality of groups to which each cable modem belongs.

19. The method of claim 17, wherein grouping the plurality of cable modems comprises
grouping the plurality of cable modems into the plurality of groups based on quality of service
requirements of each of the cable modems.

20. A cable modem termination system, comprising:
- a memory configured to store instructions;
 - a communication interface configured to receive upstream resource requests from a plurality of cable modems, each of the resource requests comprising an address associated with a cable modem of the plurality of cable modems; and
 - a processing unit configured to execute the instructions in the memory to:
 - determine an order for allocating upstream resources to each of the plurality of cable modems based on the address of each of the resource requests.
21. The system of claim 20, wherein the address comprises a medium access control (MAC) address.
22. The system of claim 20, wherein the processing unit is further configured to execute the instructions in the memory to:
- group the plurality of cable modems into a plurality of groups.
23. The system of claim 20, wherein the processing unit is further configured to execute the instructions in the memory to:
- allocate the upstream resources to each of the plurality of cable modems based on a group of the plurality of groups to which each cable modem belongs.
24. The system of claim 22, wherein the processing unit is further configured to execute the instruction in the memory to:

group the plurality of cable modems into the plurality of groups based on quality of service requirements of each of the cable modems.

25. A method of initializing cable modems subsequent to a cable modem termination system re-boot, comprising:

receiving initial upstream channel requests from a plurality of modems;

retrieving first data from each of the requests; and

determining an order in which to assign upstream channels to each of the plurality of modems based on the retrieved first data.

26. The method of claim 25, wherein the first data comprises a medium access control (MAC) address.

27. The method of claim 25, further comprising:

grouping the plurality of modems into a plurality of groups.

28. The method of claim 27, wherein grouping the plurality of cable modems comprises grouping the plurality of modems into the plurality of groups based on quality of service requirements of each of the modems.

29. The method of claim 27, wherein a first group of the plurality of groups comprise message transferring agents.

30. The method of claim 27, further comprising:
designating a first group of the plurality of groups as requiring allocation of upstream resources before other other groups of the plurality of groups.
31. The method of claim 30, further comprising:
designating a second group of the plurality of groups as being allocated upstream resources subsequent to the first group.
32. A data structure encoded on a computer-readable medium, comprising:
first data comprising a plurality of addresses associated with corresponding cable modems; and
second data comprising order data specifying an order in which upstream resources are allocated to each of the cable modems.
33. The data structure of claim 32, further comprising:
third data comprising data indicating upstream channels of the upstream resources that are to be allocated to the cable modems.
34. A system for allocating upstream resources to a plurality of cable modems subsequent to a cable modem termination system (CMTS) re-boot, comprising:
means for grouping the plurality of cable modems into a plurality of groups; and

means of identifying an order, subsequent to the CMTS re-boot, that upstream resources are to be allocated to each of the plurality of cable modems based on the group to which each of the cable modems belongs.